REMARKS

Claims 1, 10, 16, 17, 20-24, 31, 32, and 45-68 are pending. Claims 1, 16, 20, 21, 49, and 56-60 are amended and claims 66-68 are new. The amendments to claim 1 are supported by the specification in paragraphs [0037] (crosslinked synthetic shell polymer), [0039] (produced by free radical polymerization of ethylenic monomers) and [0076] (pharmaceutically acceptable excipient). New claims 66 and 67 are supported by original claim 1 and by the specification in paragraphs [0014] and [0021]. New claim 68 is supported by the specification in paragraphs [0039], [0046], and [0047].

35 U.S.C. 103 Rejection

Reconsideration is respectfully requested of the rejection of claim 1, 10, 16, 17, 20-24, 31, 32, and 45-65 as unpatentable over Notenbomer (EP 0730 494) in view of Kelly et al. (U.S. Patent Application No. 2003/0065090) under 35 U.S.C. § 103(a). As the basis of this rejection, the Office asserts that

> it would have been obvious to combine the specific monomers of the '090 application into the coating of the '494 in order to increase the stability of the coating and particle formulation. An artisan would have further been motivated to combine the thin coating to the core in order to promote the binding of the potassium ions. An artisan of ordinary skill also would have been motivated to treat patient[s] suffering from renal disorders since potassium binding is required and the particles of the combination would inherently bind potassium ions. One of ordinary skill in the art would have been motivated to combine the teachings and suggestions in the art with an expected result of a stable potassium-binding particle useful in treating various renal disorders.[1]

Applicants respectfully submit that the pending claims are patentable under 35 U.S.C. § 103 over the cited references.

[1] See Office action dated November 1, 2006 at page 5-6.

Claim 1

Claim 1 is directed to a pharmaceutical composition comprising core-shell particles. These core-shell particles comprise a core component and a shell component; the core component comprises a potassium-binding cation exchange polymer and the shell component comprises a crosslinked polymer produced by free radical polymerization of an ethylenic monomer.

Notenbomer generally discloses methods and particles for binding monovalent cations. The particles have a nucleus and a coating; the nucleus contains a cation exchange material and the coating comprises a membrane that is permeable for monovalent cations. This coating is disclosed as being more permeable for monovalent cations than for bi- or higher valent cations. Exemplified cation exchange materials are polyphosphate and polystyrene sulfonate resins. Exemplified coatings are cellulose acetate and crosslinked polyethyleneimine. Generally, these particles are disclosed for treating hypertension. Notenbomer does not describe a shell component comprising crosslinked polymer coatings prepared by free radical polymerization of ethylenic monomers.

Kelly et al. generally disclose coatings to provide corrosion resistance to metal substrates. Kelly et al.'s corrosion-resistant coatings include a polymeric matrix and polyaniline particles dispersed throughout the matrix. According to Kelley et al., the polymeric matrix may be produced by polymerization of an ethylenically unsaturated monomer (as well as a wide range of other monomers). The polyaniline particles, in turn, contain a core polymer having strong acid groups and an attached polyaniline polymer. To the extent Kelly et al. disclose core-shell particles, the core-shell particles consist of a "polyaniline polymer form[ing] a shell completely encompassing the core polymer particle."[2] Significantly, Kelly et al. do not disclose core-shell *particles* in which a polymer produced by free radical polymerization of an ethylenic monomer forms a shell around the core. Instead, Kelly et al. disperse their core shell particles (a polyaniline shell encompassing a polymer core) in an ethylenically unsaturated binder which is polymerized to form a polymeric matrix. Thus, Kelly *et al.* do not describe pharmaceutical

[2] Kelly et al. at paragraph [0028].

compositions nor do they describe core shell particles having a shell component produced by free radical polymerization of an ethylenic monomer.

The Office has failed to establish *prima facie* obviousness because the cited references do not disclose, alone or in combination, all of the features of the claimed invention. Neither Notenbomer or Kelly disclose a core shell particle comprising a shell component, where the shell component comprises a crosslinked polymer produced by free radical polymerization of an ethylenic monomer. Notenbomer discloses only cellulose acetate (in one embodiment) and crosslinked polyethyleneimine (in another embodiment) as a shell coating. Kelly *et al.* disclose only polyaniline polymer as a shell coating. Although Kelly *et al.* disclose polymerization products from ethylenic monomers as core components and as binder components, Kelly *et al.* do not disclose core-shell particles having a shell component that comprises a crosslinked polymer produced by free radical polymerization of an ethylenic monomer.

The Office has also failed to establish *prima facie* obviousness because a person of ordinary skill would not have combined the disclosures of Notenbomer and Kelly to arrive at the compositions of claim 1. Kelly's composition is not a pharmaceutical composition and the Office has failed to articulate any reason a person looking to improve upon Notenbomer's pharmaceutical compositions would look to Kelly et al. for guidance. Stated differently, there is simply no reason of record to conclude that persons of ordinary skill looking to develop pharmaceutical compositions would consider Kelly et al.'s disclosure pertinent. As such, Kelly et al. is non-analogous art and cannot properly be applied to support a rejection of claim 1.

Claim 45

Claim 45 is directed to a method of removing potassium ion from a gastrointestinal tract of an animal subject suffering from renal insufficiency or renal failure. This method comprises: (1) administering to the animal subject suffering from renal insufficiency or renal failure a composition comprising core-shell particles, (2) binding potassium ion with the core-shell particles in the gastrointestinal tract of the animal subject, and (3) retaining bound potassium ion with the core-shell particles during residence and passage of the core-shell particles through the gastro-intestinal tract of the animal subject suffering from renal insufficiency or renal failure, such that potassium ion is removed from the gastrointestinal tract of the animal subject by the

core-shell particles to obtain a therapeutic and/or prophylactic benefit. The core-shell particles comprise a core component and a shell component; the core component comprises a potassium-binding cation exchange polymer and the shell component comprises a polymer having a permeability for potassium ion that is higher than a permeability for a competing cation.

The Office has failed to establish prima facie obviousness. Simply stated, the references do not, individually or in combination, disclose each and every element of the claimed method. In fact, neither reference even discloses the method. Notenbomer discloses the administration of the particles for the treatment of hypertension. Notenbomer does not disclose treating a subject suffering from renal insufficiency or renal failure. Kelly et al. is even more distant. Kelly et al. disclose corrosion-resistant metal coatings; thus, Kelly et al. fail to disclose pharmaceutical compositions, and fail to disclose methods of treating a subject suffering from any condition.

The issue is not whether Notenbomer's particles could have been used to bind potassium in some subjects, the issue is whether it would have been obvious to modify Notenbomer's particles and use such modified particles to treat subjects suffering from renal insufficiency or renal failure when Notenbomer merely discloses that the disclosed particles may be used to treat hypertension. Notably, subjects suffering from renal insufficiency or failure typically can have a relatively long time for residence and passage through their gastrointestinal tract. Kelly, which does not disclose pharmaceutical compositions or therapeutic uses, and is from a non-analogous art, does not provide any further motivation in this regard Thus, there is no teaching or suggestion in the art that would have led a person skilled in the art to arrive at the methods defined by claim 45.

Claim 68

New Claim 68 is directed to a pharmaceutical composition comprising core-shell particles. These core-shell particles comprise a core component and a shell component. The core component comprises a potassium-binding cation exchange polymer. The shell component comprises a polymer produced by polymerization of an acrylic or methacrylic monomer wherein the shell component is about 0.005 microns to about 20 microns thick and the core-shell particle size is about 200 nm to about 2 mm.

The invention defined by new claim 68 is likewise patentable over the art of record.

Impermissible Hindsight

Since the references cited in the Office action do not include all of the required features of the claims, and independently, since there is a lack of motivation to combine these references, the Office appears to be engaged in impermissible hindsight using the applicant's claims as a template, in order to arrive at the invention defined by the claims.

In conclusion, , claims 1, 45, 68, and the claims that depend therefrom, are patentable in view of the cited references. Applicants respectfully request that this basis for rejection be withdrawn.

Provisional Double Patenting Rejection

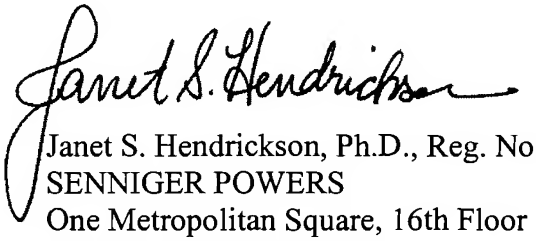
The Office provisionally rejects claims 1, 10, 16, 17, 20-24, 31, 32, and 45-65 on the ground of nonstatutory obvious-type double patenting over claims 3, 4, 14, 15, 18-22, 29, 30, 34, 36, 40, and 51-75 of copending U.S. Serial No. 10/814,749. Without conceding the propriety of this rejection, applicant will consider filing a terminal disclaimer to obviate this basis for rejection when the application is otherwise in condition for allowance.

CONCLUSION

Applicant submits that the present application is now in condition for allowance and requests early allowance of the pending claims.

The Commissioner is hereby authorized to charge any under payment or credit any over payment to Deposit Account No. 19-1345.

Respectfully submitted,



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